

Chlorine Dioxide Gas Phase Demonstration Project

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The US EPA evaluated many options for decontaminating the anthrax-contaminated buildings in the Nation's Capitol during the last weeks of October and November 2001. Given the potential widespread aerial distribution of the anthrax spores and efficacy concerns, chlorine dioxide (CLO²) was identified as having the greatest potential for cleaning up the buildings. Yet CLO² had never been tested for sporicidal efficacy as a gas phase fumigant. ERT conducted twelve tests, supported by several partners, in a USPS trailer at the Brentwood Road Distribution Center. The purpose was to determine whether CLO² could be produced in gas phase at specific levels for specified times and to evaluate both its sporicidal potential and its potential for damaging office equipment and furniture.

Variables such as concentration of chlorine dioxide, temperature, relative humidity, exposure duration (hours) and potential for collateral damage to a wide variety of materials were studied. As many as five different bacterial spores were used as surrogates for anthrax. The ERT Demonstration Project successfully allowed for a rapid evaluation of CLO² as a sporicidal fumigant and lead to the recommendation of a protocol for its use. The Demonstration Project allowed engineering design refinements for actual field applications and showed the importance of relative humidity and gas circulation for achieving optimal efficacy. The success of the Project was made possible by key contributions from several partners, including the US Postal Service Brentwood Team, the US EPA Laboratory at Fort Meade, the Leighton Laboratory at the University of California, Berkeley, and several support contractors (Sabre Oxidation Technologies; Tetra Tech EMI; Lockheed Martin; and Sterling Pulp Chemicals, Ltd.).

Numerous EPA OSC also provided critical on-scene support for this study. Copies of the report will be available at the poster session.

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